STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Department of Administration
DIVISION OF PURCHASES
One Capitol Hill
Providence, RI 02908-5855

Tel: (401) 574-8100
Fax: (401) 574-8387
Website: www.purchasing.ri.gov

February 10, 2016

ADDENDUM NUMBER TWO

RFQ #7550175

TITLE: CHLORINATION SYSTEM AT BURLINGAME STATE PARK

Closing Date and Time: 2/15/16 at 1:30 PM

Per the issuance of this ADDENDUM #2 (13 pages and PDF files) the following is noted:

This addendum posts revised drawings (in PDF format).
This addendum posts revised section 01150 and 11300.

SECTION 01150 MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.1 DESCRIPTION

A. The following sections describe the measurement of and payment for the work to be completed under the respective items listed in the Bid.

B. Each Lump Sum Price stated shall constitute full compensation as herein specified for each item of work completed in accordance with the drawings and specifications.

C. No separate payments will be made for cleaning up. Such clean-up shall be considered incidental to the item to which it applies and shall be included in the price for that item.

D. All existing work removed or damaged by the Contractor's operations shall be replaced to the satisfaction of the Owner at no additional expense to the Owner.

E. No separate payment will be made for Division 1 - General Requirements. Contractor shall incorporate the cost for these items into the Bid Items listed in the Bid Form.

1.2 BID ITEMS

A. Appurtenant items of work shown on the drawings or specified which are required to complete the work but are not listed separately under the various applicable bid items of work, shall have no separate payment for such items. It shall be the responsibility of the Contractor to verify any missing or incomplete items.

1.3 MEASUREMENT

A. The measurement of all quantities of items listed in the Bid Form shall be done by the Contractor. The measurement will include proper and complete documentation of all items to the satisfaction of the Owner and Engineer prior to the submission for payment. The measurement submitted shall be in the same unit description listed in the Bid Form.

1.4 PAYMENT

A. Payments shall be made to the Contractor only after proper documentation of the unit quantity provided or percentage of work completed, and in accordance with the contract terms and conditions regarding payment.

B. Payment for bid items shall include full compensation for all incidentals required for the complete installation of the completed product.

C. Payment shall be made only for that work which is performed within the pay limits shown on the Drawings or detailed in the Specifications. No payment shall be made for work beyond these limits unless the work has been authorized by the Engineer in writing.

PART 2 PRODUCTS

2.1 SITE MOBILIZATION AND DEMOBILIZATION

A. Measurement

1. The Work of this section shall be measured on a percentage basis. The payable quantity will be for the preparatory work and operations, which must be performed or for costs which must be incurred prior to beginning work, final clean-up and demobilization of temporary facilities and equipment, preparation of as-built drawings and securing necessary bonds and permits. Mobilization shall include but is not limited to movement of personnel, equipment, supplies, erosion and sedimentation controls, and incidentals to the project site for the establishment of all Contractor's field offices, utilities, temporary fencing, installation, maintenance, and removal of tracking pads, and other facilities necessary for work on the project. Demobilization shall include but is not limited to moving out of personnel and equipment, cleaning work areas, and removing of debris and rubbish.

B. Payment

1. Payment for this item shall be made as a percentage of the Lump Sum price listed on the bid form.

2.2 PREFABRICATED CHLORINATION SYSTEM WITH MIXER FURNISHED, INSTALLED AND TESTED

A. Measurement

1. Measurement for this item shall be on a percentage basis relative to the complete installation of the prefabricated wall mounted chlorination system, including the static mixer, one (1) spare metering pump, one (1) hand-held chlorine analyzer, 15 gallon HDPE chlorine spill containment tray, two (2) 10 gallon polyethylene tanks, calibration column and appurtenant equipment. The metering pump shall be controlled by a 4-20 mA input signal from the existing mag-meter which will automatically adjust the injection pumps speed and stroke setting based on the mag-meter flow signal. The contractor is responsible for installing metal conduit and signal wire from the existing mag-meter to the new chlorine metering pump. The payable quantity will be for the materials and labor necessary to furnish and install a complete chlorination system. The chlorination system shall be considered 100 percent complete when it is furnished, installed, tested, certified, and operational.

2. This item shall also include safety equipment and chemical resistant utility locker.

B. Payment

1. Payment for this item shall be made as a percentage of the Lump Sum price listed on the bid form.

2.3 FURNISH AND INSTALL SAND/SEDIMENT FILTERS INCLUDING ALL NECESSARY PIPING MODIFICATIONS

A. Measurement

1. Measurement for this item shall be on a 100% complete installation of the five (5), sand filters, including the installation or modification of any piping necessary to install them as shown on the Contract Drawings. The contractor is responsible for connecting to the buried pipe outside the Wells No.1 and No.2 building, and making the necessary wall repairs to the building.

B. Payment

1. Payment for this item shall be made as a percentage of the Lump Sum price listed on the bid form.

2.4 ELECTRICAL WORK

A. Measurement

1. Measurement for this item shall be on a percentage basis relative to the complete installation of all electrical work. The payable quantity will be for the materials and labor necessary to install the GFCI duplex wall receptacles, circuit breakers and associated metal conduit.
2. This item shall include the labor and materials required to bring power from the existing LP1 panel to the chlorine dosing system and other wall outlets.

B. Payment

1. Payment for this item shall be made as a percentage of the Lump Sum price listed on the bid form.

2.5 LOW WATER RED FLASHING & AUDIBLE ENUNCIATOR

A. Measurement

1. Measurement for this item shall be on a percentage basis relative to the complete installation of an audible and visible red flashing enunciator which will alarm when the existing MTU control panel receives a low water signal from the existing 5,000 gallon tank sensors. The enunciator shall be mounted on the exterior wall of the building near the entrance doors as shown on the drawing. The enunciator must be certified "suitable for outdoor use".

2. This item shall include the labor and materials required to install metal conduit from the existing MTI control panel to the externally mounted enunciator, boring through the existing CMU wall, the placard or sign with emergency contact phone numbers, re-sealing the hole through the building wall, repairing the wood siding, and re-programming the MTU control panel. This item also includes furnishing and installing a sign on the outside of the building wall near the enunciator stating emergency contact numbers when enunciator is alarming.

B Payment

1. Payment for this item shall be made as a percentage of the Lump Sum price listed on the bid form.

2.6 RECALIBRATION OF THE EXISTING MAG-METER

A. Measurement

1. Measurement for this item shall be on a percentage basis relative to coordinating with the existing Mag-Meter companies' representative and recalibrating the meter.

B. Payment

1. Payment for this item shall be made as a percentage of the Lump Sum price listed on the bid form.

2.7 POWER WASH THE FOUR(4) EXISTING 5,000 GALLON POLYETHYLENE TANKS

A. Measurement

1. Measurement for this item shall be on a percentage basis relative to the completion of power washing the four (4) existing 5000 gallon polyethylene tanks.

B. Payment

3. Payment for this item shall be made as a percentage of the Lump Sum price listed on the bid form.

PART 3 EXECUTION

3.1 BID ITEMS

A. Appurtenant items of work shown on the drawings or described in the specifications are required to complete the work, but are not listed separately under the various applicable bid items of work, and no separate payment will be made for such items. It shall be the responsibility of the Contractor to verify any missing or incomplete items.

3.2 MEASUREMENT

A. The measurement of all quantities of items listed in the Bid Form shall be done by the Contractor. The measurement will include proper and complete documentation of all items to the satisfaction of the Owner and Engineer prior to the submission for payment. The measurement submitted shall be in the same unit description listed in the Bid Form.

3.3 PAYMENT

A. Payments shall be made to the Contractor only after proper documentation of the unit quantity provided and in accordance with the contract terms and conditions regarding

payment.

B. Payment for bid items shall include full compensation for the complete installation of the complete product.

END OF SECTION

SECTION 11300 CHLORINE INJECTION SYSTEM AND RELATED EQUIPMENT

PART 1 GENERAL

1.1 WORK INCLUDED

A. The work of this section includes furnishing all labor, materials, tools and equipment necessary to furnish and install chlorine injection pumps and all related equipment as specified herein and as shown on the drawings, including:

1. Chlorine injection pumps
2. Chlorine tanks with HDPE spill tray
3. Static mixer
4. Installing external low water enunciator and sign/placard
5. Piping, tubing, and valves
6. Sand/sediment filters
7. GFCI duplex receptacles/circuit breakers
8. Power washing existing 5,000 gallon tanks
9. Installing MTU control panel conduit and re-programming
10. Calibration of existing mag-meter
11. Ancillary related equipment

B. All materials included in this section, whether or not specifically identified in the subsections of this specification that are to come into contact with potable water shall be NSF 61 or NSF 60 approved, as applicable.

C. It is the intent of this specification to address the major elements of a chlorine-based disinfection system, and not every single piece of equipment that may be required to provide a complete and functional system. Other equipment not specifically identified in this section but necessary to provide a complete and operational chlorine-based disinfection system is considered incidental to the construction of this system.

1.2 REFERENCES

A. American Water Works Association (AWWA)
B. American National Standards Institute (ANSI)
C. American Standards for Testing Materials (ASTM)
D. Hydraulic Institute (HI)
E. American Society of Mechanical Engineers (ASME)
F. Underwriters Laboratories (UL)
G. International Standards Organization (ISO)
H. ASTM D883: Standard Terminology Related to Plastics
I. US Food and Drug Administration (US FDA)
J. National Sanitation Foundation (NSF)

1.3 DESIGN CRITERIA

A. The materials and equipment covered by this specification are intended to be standard materials and equipment of proven ability as manufactured by reputable methods. Equipment shall be designed and constructed in accordance with the best practice of the industry and shall be installed in accordance with the manufacturer's recommendations

and the Contract Documents. The specifications call attention to certain features but do not purport to cover all details entering into the construction of the equipment.

1.4 SUBMITTALS

A. Shop drawings, brochures and samples shall be submitted for all items to be furnished within this section in accordance with the provisions of the General Conditions. Submittals shall include at least the following:

1. Shop Drawings, including all equipment and components.
2. Brochures and/or Catalogue Cuts.
3. Performance curves.
4. Complete master wiring diagrams, including pumps, and required coordination with other electrical control devices operating in conjunction with the chlorine injection pumps. Due to the complexity of the control functions, it is imperative that the above drawings be clear and carefully prepared to facilitate interconnections with other equipment. Standard preprinted sheets or drawings simply marked to indicate applicability to this contract will not be acceptable.
5. Installation instructions and drawings.
6. Operation and Maintenance Manual of the chlorine injection pumps, mixers, and other related equipment and components. Manual shall also list all major parts with model numbers.

B. A startup test report shall be provided upon installation of the complete disinfection system. The test shall be performed by qualified representative(s) of the equipment manufacturers for the metering pumps. The test report shall confirm the each piece of equipment's performance in the field relative to the intended design criteria and acceptable degrees of deviation, as specified by each equipment manufacturer in their standard product literature and in the shop drawing submittal package. The startup report must be completed and accepted prior to final acceptance of the disinfection system.

C. The Contractor shall supply to the Engineer and Owner, a complete set of scale drawings detailing dimensions of heights, diameter, elevations, pipe sizes and any other necessary details.

1.5 QUALITY ASSURANCE

A. All equipment furnished under this Section shall be of a design and manufacture that has been used in similar applications and it shall be demonstrated to the satisfaction of the Owner that the quality is equal to equipment made by that manufacturer specifically named herein.

B. Pump(s) complete with motor and all other specified accessories and appurtenances shall be furnished by the pump manufacturer to insure compatibility and integrity of the individual components, and provide the specified warranty for all components.

C. The wall mounted chlorine injection system specified in this section shall be furnished by and be the product of one manufacturer.

D. Pumps are to be engineered and manufactured under a written Quality Assurance program. The Quality Assurance program is to be in effect for at least ten years, to include a written record of periodic internal and external audits to confirm compliance

with such program. The pump manufacturer shall have a quality management system that is certified to ISO 9001:2000 by an accredited, certifying body.

1.6 DELIVERY, STORAGE AND HANDLING

A. All materials and equipment shall be shipped, stored, handled and installed in such a manner as not to degrade quality, serviceability or appearance. The equipment shall be stored in a clean, dry location free from construction dust, precipitation and excess moisture. The equipment shall receive all maintenance considerations required by the manufacturer for proper storage of the equipment.

1.7 SYSTEM DESCRIPTION

A. The purpose of the system is to store, handle, and deliver 5.25% liquid sodium hypochlorite to the distribution system as a means of disinfection.

B. It is the intent of this specification that sodium hypochlorite will be delivered to the system via a chlorine injection pump located in the Legiontown well site building. The chlorine injection metering pump is located on a wall mounted system, and will deliver sodium hypochlorite via plastic tubing to an in-line static mixing device. The mixing device is intended to provide mixing of the injected chlorine to ensure uniform distribution of chlorine in the distribution piping. The chlorine metering pump will be controlled via the flow output signal from the existing mag. meter located in the Legiontown well building.

C. Furnish and install five (5) tee-shaped sand/sediment filters; two (2) at the Wells No.1 and No.2 building, one (1) at the Well No.540 utility room, and two (2) at the Legiontown well building.

PART 2 PRODUCTS

2.1 WALL MOUNTED CHLORINE INJECTION SYSTEM

One (1) pre-fabricated chlorine injection system shall be provided. The wall mounted single pump system shall be complete with one (1) chlorine metering pump, electrical wiring and conduits, signal wiring and conduits, piping and valves, sensors, calibration column(s), and other necessary appurtenances for complete and satisfactorily operable chlorine injection system. The wall mounted system and hardware shall be manufactured from chemical resistant materials that do not degrade when in contact with 5.25% sodium hypochlorite solution.

A. Chlorine Metering Pump

1. Chlorine injection pumps shall be manufactured by LMI Milton Roy and shall be model LMI Series AD811 suitable for metering sodium hypochlorite. For purposes of system standardization substitutions shall not be allowed. Conformation from the manufacturer is required to verify that the correct pump model number is used for this application.
2. The metering pump shall be capable of delivering a dose of 0.2 mg/L of liquid sodium hypochlorite (5.25% solution) during a distribution system demand ranging from 0 to 60,000 GPD (approximately 100 GPM).

3. Contractor shall supply one (1) additional spare LMI metering pump, and one (1) handheld chlorine analyzer.
4. The metering pump shall be controlled by a 4-20 mA input signal from the existing mag-meter and shall adjust the injection pumps speed and stroke setting based on the mag-meter flow signal. The contractor is responsible for installing metal conduit and signal wire from the existing mag-meter to the new chlorine metering pump.

B. Piping/Fittings

All piping and fittings for use with the pump skid shall be HDPE or approved equivalent, specifically designed to handle at least 5.25% sodium hypochlorite solution without significant degradation. Piping and fittings shall be rated for at least 150 psi working pressure. Inlet connection shall be ½-inch in diameter. Outlet connection shall be ½-inch in diameter. All sodium hypochlorite transfer piping shall be color coded yellow and include directional flow arrows.

C. Calibration Columns

Calibration columns shall be EZ-Clean PVC manufactured by Griffco or approved equivalent. The volume of the calibration column shall be 100 mL, with 10 mL major increments and 2 mL minor increments.

E. Isolation Valve and Check Valves

Provide isolation ball valves and check valves, as shown on the Drawings that are constructed of materials specifically designed to handle at least a 5.25% sodium hypochlorite solution without significant degradation.

F. Anti-Siphon Valve and Air Purge Valve

Provide anti-siphon and air purge valves, as shown on the Drawings that are constructed of materials specifically designed to handle at least a 5.25% sodium hypochlorite solution without significant degradation.

2.2 STATIC MIXER

A. The 4 inch Static mixer shall be Westfall Manufacturing Co. Model 2800, (NSF 61), or approved equivalent.

B. Mounting rings shall be Fiberglass Reinforced Plastic (FRP) for 4 inch diameter static mixers.

C. Static mixers shall have an integral injection port for use with ½" HDPE tubing.

2.3 SODIUM HYPOCHLORITE STORAGE

A. The 5.25% sodium hypochlorite shall be stored in two (2) 10 gallon UV resistant, yellow polyethylene containers, as depicted on the drawings. LMI Milton Roy part number 27421

B. The two 10 gallon chlorine tanks shall be placed on a 15 gallon HDPE containment tray.

C. Each tank shall also be labeled "SODIUM HYPOCHLORITE STORAGE". Labeling shall be color coded yellow.

D. All fittings shall be made of HDPE or approved equivalent material. Metals shall not be used unless the Contractor is provided with express written consent from the Owner or Engineer.

E. Gaskets to be used with all chlorine equipment shall be Viton® or approved equivalent for use with a 5.25% sodium hypochlorite solution.

2.4 SAND/SEDIMENT SYSTEM

A. Furnish and install five (5) tee-shaped in-line sand/sediment filters. The filters casing shall be PVC and the filter shall be stainless steel. The sand filters shall be rated for no less than 30 gpm at less than one psi pressure loss.

B. The contractor is responsible for the 100% entire installation including: all piping in the buildings, and buried piping at the Well No.1 and No.2 building, and any necessary clean-up and restoration work.

2.5 LOW WATER RED FLASHING/ AUDIBLE ENUNCIATOR

A. Furnish and install an audible and visible red flashing enunciator which will alarm when the MTU control panel receives a low water signal from the 5,000 gallon tank sensors. The enunciator shall be mounted on the exterior wall of the building near the entrance doors as shown on the drawing. The enunciator must be certified "suitable for outdoor use".

B. The contractor is responsible for the 100% complete installation including: metal conduit from the existing MTU control panel to the externally mounted enunciator, boring through the existing CMU wall, re-sealing the hole through the building wall, MTU control panel re-programming.

C. The contractor is responsible for furnishing and installing a sign or placard on the outside of the building wall near the enunciator stating: "IF THIS LIGHT IS FLASHING, PLEASE CALL [PARK STAFF PHONE NUMBER] OR [SECOND PARK STAFF PHONE NUMBER].

2.6 RECALIBRATE MAG METER

A. The contractor is responsible for coordinating with the existing Mag-Meter manufacturer representative and calibrating the existing Mag-Meter.

2.7 SAFETY EQUIPMENT

A. A utility respirator wall case shall be provided. Contractor shall supply a case of respirators as manufactured by 3M model 8246 (R95). The respirator shall be certified by NIOSH.

B. The room in which the chlorine is stored and used room shall be provided with a small chemical resistant safety equipment utility locker to store pertinent personal protective

equipment (PPE) such as safety googles, aprons, and Nitrile gloves. The Contractor shall provide three pairs of wrap-around safety goggles and two boxes of nitrile safety gloves, size large.

C. The following safety equipment shall be kept on-site at all times:

i. Safety goggles;
ii. Apron;
iii. Nitrile gloves (size large);
iv. Respirators;
v. Eye wash station kit;
vi. Fire extinguisher.

2.8 PIPE SUPPORTS AND HANGERS

A. Pipe supports and hangers of approved types shall be provided as required to safely and adequately support and tie down the piping to maintain the pipelines in proper alignment and position. All materials shall be HDPE, PVC, or approved equivalent material.

B. The supports and hangers shall be adjustable where required and shall be of standard design and manufacture. Job fabricated supports and hangers will not be allowed except where specifically approved in writing.

D. The Contractor shall submit piping shop drawings that indicate the location, type, and material for all supports and hangers.

D. Saddle stands shall be adjustable and have a base plate which shall be bolted to the floor.

E. Approved type inserts and expansion sleeves shall be provided to safely and adequately fasten the supports and hangers to concrete surfaces. All anchor materials shall be HDPE, PVC, or approved equivalent.

2.9 DUCTILE IRON PIPE

A. All buried and aboveground ductile iron pipe shall be Class 52 DI pipe, and shall conform to AWWA specifications C150 and C151, latest revision.

B. Interior ductile iron pipe shall be installed with flanged joints,

C. The interior of all ductile iron pipe shall be covered with a double cement-mortar continuous lining not less than 1/8" thick, and applied in accordance with AWWA/ANSI C104/A21.4, latest revision.

D. Flanges shall be drilled and faced for American 125 Standard and shall conform to ANSI B16.1, latest revision.

E. Pipe shall have welded flanges.

F. Flanged joints shall be made with bolts or bolt studs, with a nut on each end, and 1/8 inch thick neoprene gaskets extending at least to the inside of bolts. Bolts and nuts shall be heavy, unfinished hexagon head bolts and nuts, conforming to ASA Spec. B18.2, latest

edition. Where required, flanges shall be tapped for stud bolts. Nuts and bolts shall be stainless steel.

G. Buried ductile iron pipe shall have push-on type joints. All mechanical type joints shall be restrained with MEGALUGS Series 1100. All pipe shall have a double bituminous seal coating on all exterior surfaces.

PART 3 EXECUTION

3.1 GENERAL

A. The Contractor shall be responsible for the coordination of all trades and work described in other sections which are involved in completing the installation of the chlorine-based disinfection system. This shall include the complete compatibility of electrical and mechanical components of the pumping, control systems, and telemetry.

B. Equipment shall be installed to accurate grades and lines and all interconnection shall be as straight and direct as possible while still providing the least work necessary to disconnect and replace equipment as quickly as possible. Any condition the Contractor encounters that will hinder rapid replacement of equipment shall be brought to the attention of the Engineer for his direction.

C. The manufacturer(s) shall verify that all components have been sampled, tested and inspected in accordance with these specifications and that they meet all requirements specified herein.

3.2 INSTALLATION

A. All materials and equipment shall be installed in a neat, workmanlike manner.

B. All piping installed as part of this project shall be swabbed internally with a high concentration of sodium hypochlorite solution and flushed with clean fresh water prior to coming on-line.

C. Installation of the pump skids shall be in accordance with written instructions provided by the manufacturer and as approved.

C. Drawings show piping, valves, fittings, accessories and appurtenances diagrammatically, and do not show all hangers, supports or all dimensions.

1. The Contractor must submit for approval, all piping shop drawings which shall indicate all locations and details for piping, valves, fittings, supports, and appurtenances; at which time, the Contractor shall bring to the Engineer's attention any conflict with his work or the work of other trades.
2. Any changes required to fit the piping work to equipment or structures shall be approved and shall be performed at no additional expense to the Owner.

D. Pipe, fittings, valves, accessories, and connections to equipment shall be installed in accordance with the drawings and specifications, the approved piping shop drawings, and in strict accordance with the manufacturer's recommendations.

1. All materials shall be as approved and shall be new and unused, unless otherwise specified.
2. Suitable tools and equipment shall be used for the safe and proper installation of all items.
3. Items to be embedded in concrete shall be set accurately and secured firmly.

E. The Contractor shall inspect all piping items for defects before installation and all defective items shall be replaced with new, approved material at no additional expense to the Owner.

F. All pipe fittings and accessories shall be cleaned inside before installation.

G. Adequate supports, hangers, tie-down straps, and retaining anchors shall be provided to properly restrain and support all piping, equipment and accessories. Bends, crosses, tees, caps, plugs, valves, and other appurtenances shall be strapped and clamped where required. Size, type and method of installation of anchoring and support devices shall be in strict accordance with manufacturer's requirement.

H. Adequate provision shall be made for expansion and contraction of piping.

I. All installation of equipment and appurtenances shall be performed by workmen skilled in this type of work and in a manner to insure proper positioning, alignment and satisfactory operation of all equipment without undue stresses or vibration.

J. The installation of the equipment shall be performed under the supervision of qualified representatives of the equipment manufacturer(s).

3.4 CLEAN UP

A. All new piping and equipment shall be disinfected and tested in accordance with American Water Works Association standard 651-14, section 4.10.1 – *Connections Equal or Less than One Pipe Length.*

3.5 CLEAN UP

A. Prior to start-up and field testing, all foreign matter shall be removed from all new enclosures, piping and pumps. Spillage of lubricants used in servicing the system shall be cleaned from all equipment and concrete surfaces.

B. After completion of the work all piping and appurtenances shall be thoroughly cleaned inside and out and all valves shall be opened and closed to assure proper operation.

END OF SECTION